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### < Desc/ Clms PAGE NUMBER 1 >

Description the invention relates to a filling pencil after the preamble of the principal claim.

Such filling pencils are known. The DE-25 25 66 221 shows for example a Füllbleietift existing from shaft vundSchaftvorderteil. In the shaft a mine pipe is axial movable stored. With the mine pipe connected is a mine clamping device with clamping pliers and clamping sleeve. Between clamping pliers and mine pipe or two springs, successively or into one another geiagert, are mounted. The spring or the springs is supported against pressure forward and to the rear in the shank front part, in the shaft, in Zentrierhilfen or on thrust washers. With the embodiment with two springs a spring serves to cushion the clamping pliers and thus the mine against write pressure and the second spring serves for it, the mine pipe and daft the mine clamping device axial to the rear to link up. Adverse one is here the complicated structure in the range between shaft and shank front part.

Beyond that shown has itself that the second spring of the user becomes frequent lost, if this unscrews the shank front part. The second embodiment here shown, are one behind the other disposed with which the two springs, exhibits likewise a complicated structure in the range of the connection between shank front part and shaft. The second spring becomes easy lost also here. With the third embodiment, becomes shown in which a solution with only a spring, satisfied this spring two objects: Link up the mine pipe and cushioning of the mine clamping device.

Favourable is here the simpler structure. The compression spring rests in the back and in front against two stops. Their force must be relative high dimensioned, since it must adjust the write pressure. If the spring fits now to bottom bias in front and in the back, then shown has itself that it very difficult

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it is in such a way to adjust the tolerances between mine and clamping device that those becomes the mine in such a way in the clamping pliers held that a satisfactory wedging in the clamping sleeve becomes achieved. If the mine diameter is because of the upper conventional manufacturing tolerance, the clamping pliers with its clamping surfaces project forward over the clamping sleeve. If the mine diameter is however because of the lower tolerance limit, the clamping pliers with iohren clamping surfaces are pulled in too far into the clamping sleeve, whereby an insufficient clamping pressure becomes applied, and/or. due to the axial clearance no wedging made.

Object of the invention is it to create inches filling pencil which exhibits a simple structure, with that a compression spring both for cushioning the clamping device and to the operation of the mine feed motion serves and nevertheless the sufficient mine wedging ensured.

This object becomes dissolved with the features specified in the characterizing portion of the principal claim. Favourable embodiments are covered in the Unteransprüchen.

The invention becomes more near explained on the basis the designs in the following. Show: Fig. 1 a first embodiment of the invention; Fig. 2 a second embodiment of the invention.

The filling pencil according to invention, that in Fig. 1 in rest position shown is, consists of a shaft 1 and a shank front part 2. In shaft 1 and shank front part 2 axial is a movable mine pipe 3 guided. With the mine pipe 3 in front clamping pliers are 4 fixed connected. In the front portion of the filling pencil is a bore 18 also

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a rear stop 8 in or at the shaft 1 and a front stop 7 in the shank front part 2, between which a compression spring 6 lies, which is 4 disposed around the clamping pliers and between the clamping pliers 4 and a first shoulder 13 of the mine pipe 3 bottom bias held becomes. The compression spring 6 is set in in front and in the back by front and rear thrust washers 9 and 10. Instead of thrust washers know here also centering case, and/or. Pressure sleeve provided its. The equipment with sleeves or discs is however not compelling vorteilhaft. The clamping pliers 4 lie close with their clamping surfaces 11 in the clamping sleeve 5, which is axial movable in the front portion of the shank front part 2 mounted. The compression spring 6 rests to simultaneous against the stops 7 and however not 9 of the bore 18 in the rest position direct or over the thrust washers 9 and 10 with bias simultaneous the first shoulder 13 of the mine pipe 3 and the clamping sleeve 5. The dimension between the first shoulder 13 and the clamping sleeve 5, if this holds the clamping pliers 4 and with it the mine 17 clamped is for in such a manner tuned that between the compression spring 6, and/or. 9 and 10 and the two stops 7 and 8 of the bore 18 a play A is appropriate for the compression spring 6 with the thrust washers. This play A can amount to, depending upon tolerances between mine 17, clamping pliers 4 and clamping sleeve 5, between little 1/100 mm and some mm. Favourable way amounts to the clearance A between 0,2 and 3 mm. Depending upon posture of the filling pencil the compression spring 6 or the thrust washers 9 and 10, there it the first shoulder 13, lies and/or by the dead weight of the mine pipe 3. , in one of the two stops 7 or 8 towers above the clamping sleeve 5 radial, and/or. in the located state if necessary. at none of the stops 7 or 8 on.

The impact of this filling mine pin is as follows: From the front if write pressure becomes 17 applied on the mine, then the clamping pliers 4, these clamped in which is, become and with it the clamping sleeve 5 to the rear pressed. The rear thrust washer

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10, and/or. the compression spring 6 pushes first to the rear Archlag 6 of the bore 18. The other write pressure becomes then 6 received of the compression spring, which becomes compressed, whereby itself the first shoulder 13 of the rear thrust washer 10, and/or. the compression spring solves 6. The purpose of the mine feed motion pressed becomes from in the back over a pusher on the mine pipe 3. The compression spring 6, and/or. the front thrust washer 9 pushes 7 to the front stop, and/or. lies in this function by the dead weight of the mine pipe 3 dori: on. Then the mine pipe 3 becomes and with this connected clamping pliers 4 against the compression spring 6 forward moved. The clamping sleeve 5 connected with the clamping pliers 4 by clamping force separates thereby from the compression spring 6, and/or. the thrust washer 9 and axial up to other stop notice 15 located in the shank front part 2 is carried forward in front. The mine 17 remains so long clamped and becomes thus forward transported around this path. The clamping pliers 4 separate then from the clamping sleeve 5 and give the mine 17 free. Now the pusher is released, relaxed the compression spring 6 and presses themselves the mine pipe 3 to the rear. The clamping pliers 4 pull the clamping sleeve 5 first looser also. As soon as the clamping sleeve 5 to the compression spring 6, and/or. the thrust washer 9 pushes, pulls the more wisely relaxing compression spring 6 the clamping pliers 4 into the clamping sleeve 5, whereby the described above rest position becomes achieved.

The compression spring 6 satisfied thereby both the function of cushioning the mine against Schreidrack, and those of the mine feed motion. By the clearance A the arising tolerances balanced become. Entire interior mechanics of the fine-lead pencil according to invention are around the clearance A axial movable in the shaft 1, and/or. Shank front part 2. Around if necessary. undesirable Hin-und the Herrut mechanism to avoid, becomes favourable-proves farther back in the shaft 1 a balance feather/spring inserted. In Fig. 2 is shown, like those

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Balance feather/spring 20, supported on a step 12 in the shaft 1, which becomes 14 formed in the present example by moulded on ribs and is a farther back located second shoulder 19 of the mine pipe 3 with as much bias disposed that the mine pipe 3 with the clamping pliers 4, the clamping sleeve 5 and the compression spring 6, as well as if necessary. the thrust washers 9 and 10 to the rear drawn and the compression spring 6 becomes, and/or. the rear thrust washer 9 in the rest position simultaneous against the first shoulder 13 of the mine pipe 3 and the rear stop 8 of the bore 18 rest.

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Pos clay/ tone list 1. Shaft 2. Shank front part 3. Mine pipe 4. Clamping pliers 5. Clamping sleeve 6. Compression spring 7. front stop 8. rear stop 9. front thrust washer 10. rear thrust washer 11. Clamping surfaces 12. Step 13. first shoulder 14. Ribs

15. Stop notice 16. Protection tube 17. Mine 18. Bore 19. second shoulder 20. Balance feather/spring